NANCY C. ROTHMAN, Ph.D.
CEO and Principal Scientist

AREAS OF EXPERTISE

Organic environmental chemistry (PCBs, PAHs, Dioxins/Furans, and VOCs/SVOCs), quality assurance and quality control of environmental measurements, regulatory negotiations, technical reports evaluation and generation, methods development, data interpretation and usability evaluation, and environmental laboratory management.

EDUCATION

1984 - Ph.D. Physical-Organic Chemistry, Brandeis University, Waltham, MA
1980 - M.A. Physical-Organic Chemistry, Brandeis University, Waltham, MA
1978 - B.S. Chemistry with ACS Accreditation, Union College, Schenectady, NY

PROFESSIONAL EXPERIENCE

1996 - present **NEW ENVIRONMENTAL HORIZONS, INC**., Skillman, NJ
CEO and Principal

- Provide technical work products and evaluation of environmental data in support of regulatory compliance, risk assessment, and remediation.
- Provide expert technical assistance in support of environmental investigations specializing in: Quality Assurance/Quality Control (QA/QC); data validation and usability; compliance of investigations with historical and current methods of chemical sampling and analysis; as well as investigation-specific aspects of QA/QC and environmental chemistry.
- Provide technical problem-solving and investigative project design and management in support of environmental chemical evaluations.
- Technical areas of expertise include: quality of environmental data and systems; process evaluation and design; regulatory compliance; and organic analytical chemistry for the analysis of petroleum hydrocarbons, semivolatile organic compounds, volatile organic compounds, pesticides, dioxins/furans, and PCBs in a variety of matrices including water, soil, sediment, sludge, and air.

1994 -1996 QUANTERRA INCORPORATED, Denver, Colorado
Project Leader for Workflow &* Corporate *Director of Productivity and Process Redesign

- Coordinated technical experts and performed training to stream-line laboratory operations across the United States
- Directed productivity and cost reduction efforts for Quanterra interfacing with ten national laboratories to improve communications, customer service, and the financial success.
- Member of Quanterra Management Team responsible for: integrating the operations of Enseco and International Technology Analytical Laboratories forming Quanterra; design, testing, and deployment of Information Management systems throughout the laboratory network; and development and implementation of standard products for the corporation.

1993-1994 ENSECO - SOMERSET LABORATORY, Somerset, New Jersey
Director of Operations

- Directed 120 employees; responsible for analytical operation, sales, customer service, information technology, business reporting, and quality assurance/quality control (QA/QC).
- Developed budgets, maintained a balanced Profit & Loss, implemented productivity improvements, cost reduction programs, and capital asset management programs.
- Directed a four-year contract supporting the USEPA Methods Study Program from the Office of Solid Waste – provided method development in support of the Toxicity Characteristic Leaching Procedure (TCLP) and provided technical support for USEPA SW-846, Third Edition Methods

1991-1993 ENSECO INCORPORATED, Cambridge, MA

Corporate Chief Organic Scientist

- Coordinated and communicated technology activities across the Enseco laboratory network serving as focal point for problem-solving for new method implementation and lab processes.
- Identified Best Practices to disseminate new techniques and share intellectual strengths.
- Approved capital purchases, developed vendor partnerships, and directed the evaluation of advanced techniques.
- Performed systems and method compliance audits for all facilities to determine cost effective and technically proficient ways of processing samples.

1987-1991 ENSECO-ERCO LABORATORY, Boston, Massachusetts

Division Director, Organic Lab Director, Inorganic Lab Director, Manager of Semivolatile GC/MS

- Directed laboratory with over 100 employees responsible for operation, sales, customer service, information technology, business reporting, and QA/QC.
- Developed Total Quality Management approach for the laboratory operation. Implemented Just-in-Time approach for inventory control incorporating vendor partnership agreements.

1984-1987 ENSECO-ERCO LABORATORY, Boston, Massachusetts

Director of Hazardous Materials Assessment

- Developed the Toxicity Characteristic Leaching Procedure (TCLP) with Oak Ridge National Laboratory and the USEPA.
- Provided technical support in the development of the USEPA SW-846, Third Edition Methods Manual; coordinated EPA work groups nationally.

1983-1984 ENSECO-ERCO LABORATORY, Boston, Massachusetts

Supervisor of Semivolatile GC/MS

- Performed GC and GC/MS methods development for analysis of unusual semivolatile analytes using a variety of detection methods (e.g., GC-FID; GC-NPD; GC-ECD; GC/MS-EI; GC/MS-CI, GC/MS-SIM) and complex media including coal tars, tissues, oils, dry cleaning wastes, printing inks, sludges, and sediments.

PROFESSIONAL AND HONORARY ASSOCIATIONS

New Jersey Science Advisory Board ♦ Sigma Xi Society ♦ Eliphalet Nott Society ♦ Licensed Site Professional Association ♦ Licensed Site Remediation Professional Association ♦ Society of Environmental Toxicology and Chemistry (SETAC) ♦ Interstate Technology & Regulatory Council (ITRC)

COMMUNITY SERVICE

Member of the Community Advisory Board, Montgomery Township, Skillman, NJ. Providing *pro bono* technical support for Asbestos and chemical remediation of North Princeton Development Center. 2007 – 2010.

Parent Teacher's Association, PS. 199, NYC, NY. Providing *pro bono* technical support for PCB contamination assessment and remediation in public school. 2007 - 2010.

Volunteer for Health and Environment Assistance Resources (HEAR). Providing *pro bono* technical support for members of the community on a variety of environmental chemistry issues. 2017

PUBLICATIONS AND PRESENTATIONS

Rothman, N.C. 1985. Documenting Limits of Detection and Quantitation. EPA Contract No. 68-01-7075. U.S. Environmental Protection Agency, Washington, DC.

Rothman, N.C. 1985. Appendix VIII Filtration Study. EPA Contract No. 68-01-7075. WA 42. U.S. Environmental Protection Agency, Washington, DC.

Rothman, N.C. 1985. Filtration of Various Wastes Using Various Filter Media. EPA Contract No. 68-01-7075. U.S. Environmental Protection Agency, Washington, DC.

Chiu, K.S., P.L. DiMattei, L. Guzman, N.C. Rothman, and A.Tucci. 1985. Quality Control and Quality Assurance in the GC/MS Characterization of Hazardous Wastes. Presented at the 15th Northeast Regional ACS Meeting, New Paltz, New York, June.

Rothman, N.C., D.F. Dever, D. Garcia, and E. Grunwald. 1986. An IR-UV Double Resonance Study of CBR2 F2. Evidence for V-V' Vibrational Steady States. *J. Phys. Chem.*, pp. 6464-6470.

Rothman, N.C. 1986. Wastes to be Studied for Land Disposal Restrictions and Toxicity. Final Report. EPA Contract No, 68-01-7075. WA 5. U.S. Environmental Protection Agency, Washington, DC.

Rothman, N.C. and E.A. Henry. 1986. Ruggedness Evaluation of Bottle and ZHE TCLP Protocols. Final Report. EPA Contract No. 68-01-7075. WA 42. U.S. Environmental Protection Agency, Washington, DC.

Rothman, N.C. 1986. Development of TCLP Video Tape. EPA Contract No. 68-01-7075. WA 42. Presented at the Second Annual United States Environmental Protection Agency Symposium on Solid Waste Testing and Quality Assurance.

Rothman, N.C. and J.F. Lee. 1986. Evaluation of Acetate Buffer Versus Water for TCLP Extraction of Volatile Organics. Final Report. EPA Contract No. 68-01-7075. WA 42. U.S. Environmental Protection Agency, Washington, DC.

Rothman, N.C., *et al*. 1986. Third Edition SW-846. EPA Contract No. 68-01-7075 and 68-01-7266. U.S. Environmental Protection Agency, Washington, DC.

Williams, L.R., C.W. Francis, M.P. Maskarinec, D.R. Taylor, and N.C. Rothman. 1986. Single-Laboratory Evaluation of Mobility Procedure for Solid Waste. Environmental Monitoring Systems Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Las Vegas, Nevada.

Rothman, N.C. 1986. Extraction Fluid Study and Development of an Alkalinity Test for the TCLP. EPA Contract No. 68-01-7075. WA 42. U.S. Environmental Protection Agency, Washington, DC.

Rothman, N.C. 1988. Restrictions Rule and Relisting Support. EPA Contract No. 68-01-7266. WA 58. U.S. Environmental Protection Agency, Washington, DC.

Sleevi, P., D. Loring, J. Parr, and N.C. Rothman. 1991. Developing a Uniform Approach for Complying with EPA Methods. Presented at the 7th Annual Waste Testing and Quality Assurance Symposium, Washington, DC, July.

Rothman, N.C. 1991. Instructor in Performing the Toxicity Characteristic Leaching Procedure. Presented at the NY and PA Association of Environmental Laboratories Fall meeting.

Chapnick, S.D. and N.C. Rothman. 1993. The Power of Cross-Training. *Environmental Laboratory*, Vol. 4, No. 6: 20-24.

Kane, P. and N.C. Rothman. 1993. Testing GC Method Ruggedness and Improving Injection Technique by Design - Not Chance. *LC-GC*, Vol. 11, No. 11: 813-820.

Chapnick, S.D. and N.C. Rothman. 1997. Check the Data Before Making a Brownfield Decision. *Brownfield News*, September, Vol. 1, Issue 4: 11-13.

Kane, P., S.D. Chapnick, N.C. Rothman, and C.A. Menzie. 1999. *Freeze-Drying Sediments To Achieve Risk-Based Detection-Levels For Semivolatile Organic Compounds and Metals.* Poster presentation at Society of Environmental Toxicology & Chemistry (SETAC) North American 20th Annual Meeting, November 1999.

Chapnick, S.D. and N.C. Rothman. 1999-2004. *Fundamentals of Sampling, Analysis, and Data Usability*. Ongoing two-day training program for 400 employees of the Massachusetts Department of Environmental Protection (MADEP) in environmental quality and data usability.

Rothman, N.C. 2000. *Effective Tools for Explaining Environmental Chemistry*. Boston Bar Association presentation, February 29, 2000.

Chapnick, S.D. and N.C. Rothman. 2000. *Quality of Environmental Measurements*. Eight hour technical continuing education course for the Massachusetts Licensed Site Professional Association (LSPA). April 21, 1999.

Kane, P., S.D. Chapnick, N.C. Rothman, and C.A. Menzie. 2000. *Freeze-Drying of Sediments to Achieve Risk-Based Detection Levels for PCB Congeners, Polynuclear Aromatic Hydrocarbons (PAHs), and Metals*. Poster presentation at the 16th Annual Waste Testing and Quality Assurance (WTQA) Symposium, August 8, 2000.

Chapnick, S.D., N.C. Rothman, P.J. Kane, L.C. Pitts, C.A. Menzie. 2000. *Freeze-Drying of Sediments to Achieve Risk-based Detection Levels for Polyaromatic Hydrocarbons (PAHs) and Metals*. Poster presentation at the 17th Annual International Conference on Contaminated Soils, Sediments and Water, October 16-19, 2000, University of Massachusetts at Amherst.

Chapnick, S.D. and N.C. Rothman. 2001. *Quality of Environmental Measurements*. 8-hr Technical Course developed and given for the Massachusetts Licensed Site Professional Association, November 13, 2001.

Chapnick, S.D. and N. C. Rothman. 2002. *Quality Solutions to Meet Both Human Health and Ecological Risk Assessment Data Needs.* Invited presentation at the *Society of Environmental Toxicology and Chemistry* (SETAC) North America 23rd Annual Meeting, November 16-20, 2002, Salt Lake City, Utah.

Rothman, N.C. and S.D. Chapnick. 2003. *Planning the Collection and Analysis of Environmental Data to Support Risk Assessment*, presentation at the National Environmental Monitoring Conference (NEMC), Washington, D.C. July 22, 2003.

Chapnick, S.D. and N.C. Rothman. 2004. *Evaluation of Data Quality for MCP Submittals*. Half-day technical course developed and presented for the Massachusetts Licensed Site Professional Association (LSPA), May 25, 2004.

Chapnick, S.D. and N. C. Rothman. 2004. *Does "Presumptive Certainty" Guarantee Usable Data?* Presentation at the Society of Environmental Toxicology and Chemistry (SETAC) North Atlantic Chapter meeting, June 10, 2004.

Chapnick, S.D., N. C. Rothman, and E. Denly. 2004. *Is "Presumptive Certainty" Generating Usable Data for Risk Assessment Under the MCP?* Presentation at the 20th Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, October 21, 2004.

Rothman, N.C. and S.D. Chapnick. 2005. *Demystifying Dioxin Data for the Environmental Decision-Maker*. Presentation at the 21st Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 19, 2005.

Rothman, N.C. and S.D. Chapnick. 2006. *Interpretation of Uncertainty in Dioxin/Furan Data for the Risk Assessor and Environmental Decision-Maker*. Presentation at the Society of Environmental Toxicology and Chemistry (SETAC) North Atlantic Chapter Regional Annual Conference at Portland, Maine, June 7-9, 2006.

Chapnick, S.D., I.M. Phillips, and N.C. Rothman. 2006. *Evaluating Data Usability and Representativeness Under the New MCP Guidelines.* Presentation at the 22nd Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 16-19, 2006.

Rothman, N.C. and S.D. Chapnick. 2007. *Sediment Data Quality for Use in Ecological Risk Assessment*. Presentation at the 23rd Annual Meeting, Hudson-Delaware Chapter of Society of Environmental Toxicology and Chemistry (SETAC), Stockton, New Jersey, April 26-27, 2007.

Rothman, N.C. and S.D. Chapnick. 2007. *Soil Vapor Intrusion Data – Planning and QA/QC Evaluation for Risk Assessment*. Presentation at the 23rd Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 18, 2007.

Boynton, S., S. Chapnick, N. Rothman, and S. Greason. 2008. *Case Study – Using Real-Time Field measurements and Data Visualization for Efficient Site Assessment and Remedy Selection.* Presentation at the International Conference and Training Triad Investigations – New Approaches and Innovative Strategies, USEPA Office of Superfund Remediation and Technology Innovation and The environmental Institute, UMass, Amherst, MA, June 12, 2008.

Chapnick, S., L. Pitts, and N. Rothman. 2009. *Quality Assurance Is Not A Guarantee: False Positives and Negatives for Metals Data Used In Quantitative Risk Assessment*. Presentation at the Society of Environmental Toxicology and Chemistry (SETAC) North Atlantic Chapter Regional Annual Conference at Portland, Maine, June 12, 2009.

Chapnick, S.D., Pitts, L.C., and Rothman, N.C. 2010. Arsenic and Thallium Data in Environmental Samples: Fact or Fiction? *Remediation*, Autumn 2010, pp 39-59.

Rothman, N.C. and S.D. Chapnick. 2011. *PCBs in Schools – Lessons Learned from a NYC School Case Study.* Presentation at the 27th Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 2011.

Baker, G.F., D. Beckmann, N. Rothman, W.B. Driskell, J.R. Payne, and J.N. Hall. 2014. *A Practical Reassessment of Common Conventions About Preservation and Holding Times for Samples Collected for Contaminant Chemistry Analysis.* Presentation at the 2014 Gulf of Mexico Oil Spill & Ecosystem Science Conference, Mobile, AL, January 2014.

Robinson, D., P. Worby, R. Ferguson, G. Toffoli, and N. Rothman. 2014. *NJDEP Environmental Quality Assurance Technical Guidance, "Data Quality Assessment for Investigation & Remediation"*. Seven hour continuing education course for New Jersey License Site Remediation Professionals (LSRPs) at Rutgers University, New Brunswick, NJ, June 2014

Robinson, D., R. Ferguson, G. Toffoli, and N. Rothman. 2014. *Technical Guidance Document Training: Analytical Rules and Technical Guidance.* Three hour training for New Jersey Department of Environmental Protection (NJDEP), Trenton, NJ, June 2014

Rothman, N.C., 2016. *Out of the Frying Pan, into the Drinking Water: Health Hazards and Community Responses to Water contaminated with PFCs*, presented PFAS chemistry information during a Partnership Call for the Collaborative on Health and the Environment, December 20, 2016.

Rothman, N.C., and S.D. Chapnick. 2017. *PFAS Data Certainty Issues And Recommendations To Obtain Accurate Data For Risk Evaluations*, presented at the 23rd Annual Meeting of SETAC North Atlantic Chapter, University of Massachusetts at Amherst, MA, June 2017.

Rothman, N.C. and S.D. Chapnick. 2017. *Limitations of PFAS Data and Recommendations to Obtain Appropriate Data for Environmental Decision Making*. Presentation at the 33rd Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 2017.

Prabhu, C., S. McDonald, S. Gbondo-Tugbawa, Y. Wang, N. Rothman, R. Weissbard, and D. Marulanda. *Characterization of Contaminants of Potential Concern in NAPLs from Multiple Sources in a Superfund Site*; 11th Battelle International Conference on Remediation of Chlorinated and Recalcitrant Compounds, poster session, April 2018.

Rothman, N.C. 2018. *Down the Drain with PFAS: The Latest on Testing Measuring, and Mitigating Community Water Contamination*, presented PFAS chemistry information during a Partnership Call for the Collaborative on Health and the Environment, May 2018.

Rothman, N.C. and S.D. Chapnick. 2018. *Fundamentals of Environmental Analysis & Data Quality Assessment.* 3-hour lecture at Boston University School of Public Health, Boston, MA, October 2018.

Rothman, N.C. 2019. *PFAS: Sampling Challenges & Assessing Laboratory Data Quality.* 1.5-hour Webinar for Northeast Waste Management Officials' Association (NEWMOA), April 4, 2019.

Rothman, N.C. 2019. *AFFF, Analytical Concerns and Data Assessment*. ITRC PFAS Short-Course presented at SETAC, Hudson-Delaware Regional Chapter Conference, Princeton, New Jersey, April 24, 2019.

Rothman, N.C. and S.D. Chapnick. 2019. *Limitation of PFAS Data and Recommendations to Obtain Appropriate Data for Environmental Decision Making*. Presentation at New Jersey Water Environment Association (NJWEA) Conference, Atlantic City, New Jersey, May 6, 2019.

Rothman, N.C. 2019. *AFFF, Analytical Concerns and Data Assessment*. USEPA Federal Facility Forum (FFF) conference call presentation, June 13, 2019.

Rothman, N.C. 2019. *Analysis of PFAS and Data Quality Issues*. New Jersey Department of Environmental Protection presentation, August 12, 2019.

Rothman, N.C. and E. Denly. *Obtaining Appropriate PFAS Data for Environmental Decision Making – ITRC Guidance Update*; Presentation at the 35th Annual International Conference on Soils, Sediments and Water, University of Massachusetts at Amherst, MA, October 2019.